

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

Master of Engineering in Industrial & Manufacturing Engineering

Environmental Conscious Manufacturing – TIE 6221

1st SEMESTER EXAMINATIONS - FEBRUARY 2010

Instructions to Candidate

Time Allowed: 3 hours

Answer 5 questions.

QUESTION 1

Discuss the waste minimization strategies for

- i) Solid [6]
- ii) Fluid [6]
- iii) Dust effects on the Environment in Zimbabwean Industry. [8]

QUESTION 2

What would be the challenges for introducing cleaner production in a Zimbabwean company? [20]

QUESTION 3

“Sustainable Development is a controversial term” Discuss this statement. [10]
Discuss the elements of ISO 14001 Standard. [10]

QUESTION 4

Discuss the main pillars of Agenda 21. [20]

QUESTION 5

Discuss those aspects which are affected by a manufacturing environment. [10]
How are these aspects of environment affected? [10]

QUESTION 6

Explain the following terms in relation to sustainable development using a specific product from a given company:

- a) Life cycle analysis [8]
- b) Eco-efficiency [6]
- c) Material substitution [6]

QUESTION 7

Discuss differences and similarities, if any, between Environmentally Conscious Manufacturing and a Waste Management System [20]

END OF EXAMINATION